Town of Tyngsborough
Conservation Commission
25 Bryants Lane
Tyngsborough, Massachusetts 01879-1003
Office: (978) 649-2300 ext 116
Fax: (978) 649-2301

APPROVED
8-25-09

Minutes
July 28, 2009
APPROVED

Present:
ES: Ed Smith **LG:** Lucy Gertz **JN:** John Nappi **CF:** Christine Fox
MM: Matt Marro, Conservation Director

Absent:
JK: Jeff Kablik **WL**: William Look **JE:** Jerry Earl

7:10pm **Meeting opened** by Ed Smith

7:10pm **79 Mascuppic Trail (M32B, P16, L0) – Request for Determination of Applicability** for the excavation of an 8' x 4' x 4' leach trench to capture flood water; backfill, loam, and seed disturbed area.

JN: Motion to waive the reading of the abutters list
LG: 2nd the motion
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

JN: Motion to waive the reading of the legal ad
LG: 2nd the motion
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

Applicant Joan Trudel appeared before the Commission to explain her plans to excavate a trench on her property. This is a retroactive filing required by the Commission in response to an enforcement action. MM reported that Ms. Trudel has complied with all of the Commission's requirements and recommended that a Negative Determination be issued.

LG: Motion to close the hearing.
JN: 2nd the motion.
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

LG: Motion to issue a Negative Determination of Applicability for 79 Mascuppic Trail for the excavation of an 8' x 4' x 4' leach trench and to loam and seed the disturbed area.
JN: 2nd the motion.
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

7:15pm **Lake Massapoag Rod & Gun Club (M3, P2, L2) – Notice of Intent, DEP# 309-0827** for the proposed harvesting of Variable Millfoil weeds from the lake and temporarily storing them on Rod & Gun Club property until dry enough to transport off-site.

JN: Motion to waive the reading of the abutters list.
LG: 2nd the motion
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

JN: Motion to waive the reading of the legal ad.
LG: 2nd the motion
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

Jon Wheeler and Brian Sargent, both representing the Massapog Rod & Gun Club appeared before the Commission to explain the plans to harvest the Variable Millfoil weeds on Lake Massapoag (see attached photos). Mr. Wheeler started by stating that the Town of Dunstable has already approved an Order of Conditions for this project in Dunstable only. Groton will also be hearing this proposal in the near future. Mr. Wheeler summarized the attached handout titled "Lake Massapoag Weed Harvesting", which details the problem, the plan, the applicable history, the Weed Harvesting and Applicability to Lake Massapoag, and an Example Comparison between Similar Lakes. In addition, a Lake Management newsletter (attached) was also summarized for the Commission. Mr. Wheeler reported that currently, of the available areas in the lake that can support Millfoil growth, 80% of it is already infested. The high phosphate and nitrate content in the lake have enabled the Millfoil to thrive in Lake Massapoag. If nothing is done, the lake will perish and become a swamp. ES inquired whether any biological evaluation and analysis was done on the lake with a comprehensive lake management program. Mr. Wheeler indicated that nothing extensive has been done. ES went on to voice his grave concern that harvesting the Millfoil incorrectly would result in great volumes of fragmentation to the weeds that would result in spreading the weed to others of the lake that are currently not infested. MM notified Mr. Wheeler that the Order of Conditions for their "draw down" permit is about to expire, and they should start the re-filing process in the near future. MM and ES had serious concerns over the liability issues involved with the operation of the harvester. Abutters from 214 Massapoag Rd., 182 Massapoag Rd. and 186 Massapoag Rd. spoke against the harvesting project. MM recommended to continue the hearing until DEP has reported its comments and Tyngsborough Town Counsel has been consulted regarding the liability issues.

LG: Motion to continue the hearing until 8/11/09.
JN: 2nd the motion.
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

7:35pm **18 Upton Drive (formerly 20 Upton Dr.) (M20A, P32) – Request for Certificate of Compliance DEP# 309-813.** Order of Conditions issued 7/8/2008.

LG: Motion to issue a Certificate of Compliance for 18 Upton Dr. (formerly 20 Upton Dr.) (M20A, P32) DEP# 309-813.
JN: 2nd the motion
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

7:40pm **Longfellow Lane (M21, P43, L125) – Request for Extension to Order of Conditions, DEP# 309-0797.** Order issued 12/12/06.

LG: Motion to issue one (1) 3-year extension to the Order of Conditions DEP# 309-0797.
JN: 2nd the motion.
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

Director's Determinations and Report

265 Middlesex Rd. – MM reported that an existing garage is falling apart and only the walls will be reinforced.

LG: Motion to issue a Director's Determination to 265 Middlesex Rd. for the re-building of existing garage walls.
CF: 2nd the motion.
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

104 Long Pond Rd. – MM reported that an addition will be built going up on an existing garage and will not impact the buffer zone or resource areas.

LG: Motion to issue a Director's Determination to 104 Long Pond Rd. for the construction of an addition.
CF: 2nd the motion.
In Favor: 4 **Opposed:** 0 **Absent:** 3
Passes

Minutes/Sign Forms/Other Business

The minutes from 6/9/09, 6/23/09, and 7/14/09 meetings could not be approved, as there were not enough members present who attended those meetings.

Signed the following forms:

- Dracut Water Supply, Roy Ave. & Davis Street Determination of Applicability.
- 18 Upton Dr. (formerly 20 Upton Dr.) (M20A, P32) – Certificate of Compliance, DEP# 309-813.
- Longfellow Lane (M21, P43, L125) – Extension to Order of Conditions, DEP# 309-0797.

9:00pm

CF: Motion to adjourn
LG: 2nd the motion
In Favor: 4 **Opposed**: 0 **Absent**: 3
Passes

Respectfully submitted
Pamela Berman, Conservation Clerk

Town of Tyngsborough
Conservation Commission
25 Bryants Lane
Tyngsborough, Massachusetts 01879-1003
Office: (978) 649-2300 ext 116
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AGENDA
July 28, 2009

7:00pm **79 Mascuppic Trail (M32B, P16, L0) – Request for Determination of Applicability** for the excavation of an 8' x 4' x 4' leach trench to capture flood water; backfill, loam, and seed disturbed area.

7:15pm **Lake Massapoag Rod & Gun Club (M3, P2, L2) – Notice of Intent DEP# 309-0827** for the proposed harvesting of Variable Millfoil weeds from the lake and temporarily storing them on Rod & Gun Club property until dry enough to transport off-site.

7:25pm **422 Middlesex Road (M12, P29A, L0) – Notice of Intent DEP# 309-0821** for the proposed construction of a roadway with associated grading and utilities in an industrial subdivision. Continued from 6/23/09.

7:35pm **18 Upton Drive (formerly 20 Upton Dr.) (M20A, P32) – Request for Certificate of Compliance DEP# 309-813**. Order of Conditions issued 7/8/2008.

7:40pm **Longfellow Lane (M21, P43, L125) – Request for Extension to Order of Conditions, DEP# 309-0797.** Order issued 12/12/06.

Discussion:

Administrative:

1. Director's Determinations and Report

   - 265 Middlesex Road – structure work.
   - 104 Long Pond Road – addition.

2. Minutes/Bills/Other Business:

   - ❖ Approve the minutes from the 6/9/09 meeting.
   - ❖ Approve the minutes from the 6/23/09 meeting.
   - ❖ Approve the minutes from the 7/14/09 meeting.

3. Sign the following forms:

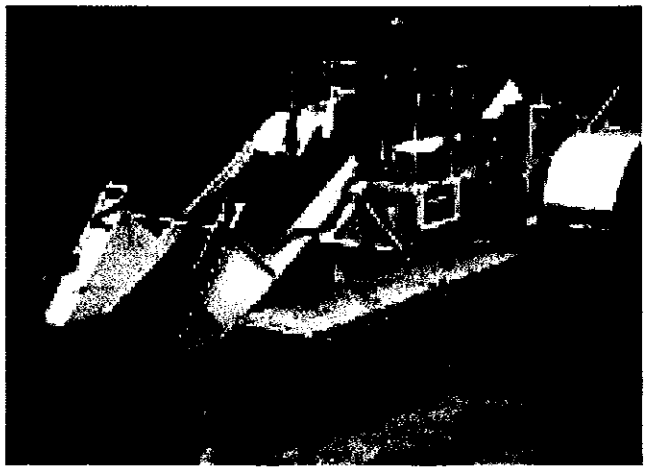
- Dracut Water Supply, Roy Ave. & Davis Street Determination of Applicability
- 18 Upton Dr. (formerly 20 Upton Dr.) (M20A, P32) – Certificate of Compliance, DEP# 309-813
- Longfellow Lane (M21, P43, L125) – Extension to Order of Conditions, DEP# 309-0797

Lake Management

Weeds, weeds, weeds...

Some of you may have noticed that the lake is unusually infested with weeds this spring. What are we doing about it...

An extremely large effort is underway to establish a comprehensive lake management program. The intent of the program is to make the lake cleaner and more fun to use by reducing and managing the lake weeds and encouraging a larger and healthier fish population. LMRGC is commissioning and conducting a comprehensive scientific study that will dictate the treatment and management efforts. The study involves the measurement and analysis of water, lake bottom, and organic growth (fish and weeds). The water will be measured for dissolved oxygen, nitrate and phosphate levels, water temperature profiling, thermocline analysis, flow rates, turbidity, etc. The lake bottom will be topographically scanned with sonar equipment to measure content and depth (silt, sand, rock). The organic growth of weed and fish populations will be sampled. This study will leverage weed sampling data and previous work on silt analysis. The data will be analyzed and a plan developed. The plan will certainly have multiple treatment/ management programs. Generally the plan will be developed with all criteria in mind: science (doing 'something' without understanding what is wrong is a waste), environmental considerations (we could use DDT to get rid of the weeds and everything else), and feasibility (we can't afford a plan that calls for an annual expenditure of $15,000 if we only look to our membership dues and donations for income). To date, there are two initial aspects that are consistently recommended and meet the criteria of our plan: weed harvesting and draw down.



The dominant weed in Lake Massapoag is an invasive species called **Variable Milfoil**. According to Massachusetts DCR (see website for a pdf copy of the study):

Management Methods for Variable Milfoil

1) Harvesting
2) Drawdowns
3) Chemicals

LMRGC is exploring the option of buying a lake weed harvester as part of the management plan. The weed harvester is a floating machine that will cut and remove lake weeds up to five feet below the surface. It gathers the weeds and transports them to a shore site where the weeds are off loaded and moved to a compositing site. The harvester is not the sole answer to the lake weed problem but will provide 'immediate' treatment. The machine is mechanically complex and expensive to maintain and operate. The use of the machine on the lake and the sites for weed composting requires permitting which is currently underway. The membership will be called upon for volunteers for the operation and maintenance of the harvester. How would you like to drive a harvester??

During the research and commissioning, every expert I have spoken with recommends lake draw down as the primary, cheapest, safest and easiest treatment for weeds. Most lakes do not have the ability to reduce the lake level on command. This treatment if done correctly is so powerful many lakes that can't draw down by other means pump the water out of the lake with large high volume pumps. They pay handsomely to rent and use these pumps. I attended the annual lake and conservation symposium. Most of the area's conservation commissions and policy makers were in attendance as well as engineering firms and commercial treatment companies. I spoke with three engineering firms and three chemical treatment companies at this symposium. I was not speaking with sales people. I was speaking with scientists and the owners of the companies; professionals, educated and experienced. There were a million opinions about everything except this one issue. All agreed on one thing: draw down if done properly is the most effective way to treat weed problems. The members of the conservation and policy makers also agreed and are

Lake Management (cont.)

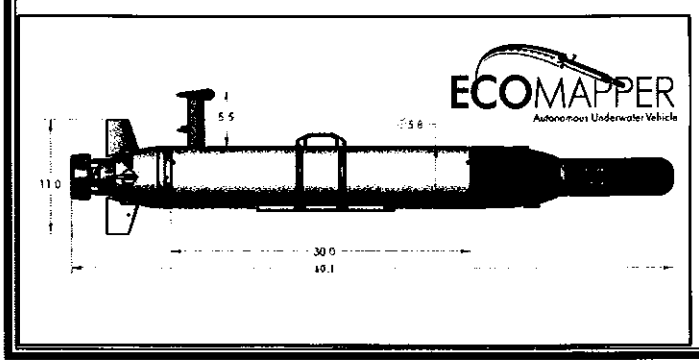
in the process of adjusting the policies to the techniques outlined below. Every company I have spoken with as I have researched the instrumentation and techniques to measure and analyze the lake have agreed. Even the companies I have spoken with regarding the harvesters have agreed to a person: "You can lower your lake... wow... that's fantastic... you're lucky... that makes weed control much easier." The key is conducting proper draw downs annually. Done properly, we can address most of the key complaints against draw down: usability (ice in the winter) and drying damage to normally submerged wood. Draw down has two goals: 1) to allow the maintenance/cleaning of exposed shore and 2) to pull weeds frozen in ice out of the lake bottom when the lake is refilled. These goals require that the lake be initially drawn down early enough to allow residents the time to maintain/clean the shore before the 1st snow and that the lake be raised while the ice is solidly frozen. To allow time for maintenance/ cleaning the lake should be lowered in October. To allow usability the lake should be raised as soon as the ice is frozen solid. It is also possible to raise and lower the lake twice in season to decrease the amount of time the lake is lowered: lowering in early October for a month to allow maintenance/cleaning, raising the lake by Thanksgiving, lowering again before the lake freezes (late December/early January) and raising it again immediately after the lake freezes. If we accurately predict the first hard freeze the lake would only be down a few weeks the second cycle. Lowering the lake earlier will allow the residents to maintain/clean the shore and it will allow us to potentially use the weed harvester to harvest deeper weeds. This technique is used on many other lakes and is highly recommended by the professionals. Weeds only grow from a maximum depth of 12 – 15 feet. The harvester can cut 5-6 below the surface. With the lake lowered 5-6 feet we can cut to an effective depth of 10 – 12 feet. With good shore maintenance/ cleaning and harvesting while the lake is down, we could theoretically remove almost all the weeds.

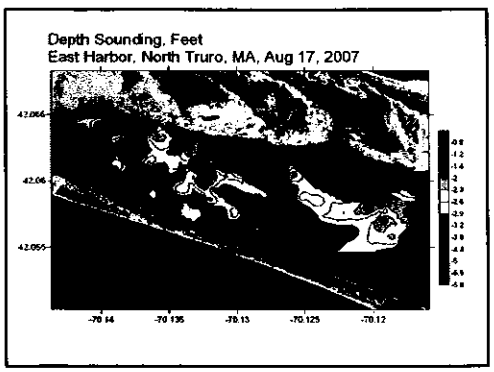
It is important to note that the proper use of the harvester depends on lake lowering and is only one element in the overall lake management plan. The harvester alone will not address the root causes of the weed growth problem and if not used as outlined here could increase weed growth. The harvester will provide immediate relief from the emergent weeds present on the lake now.

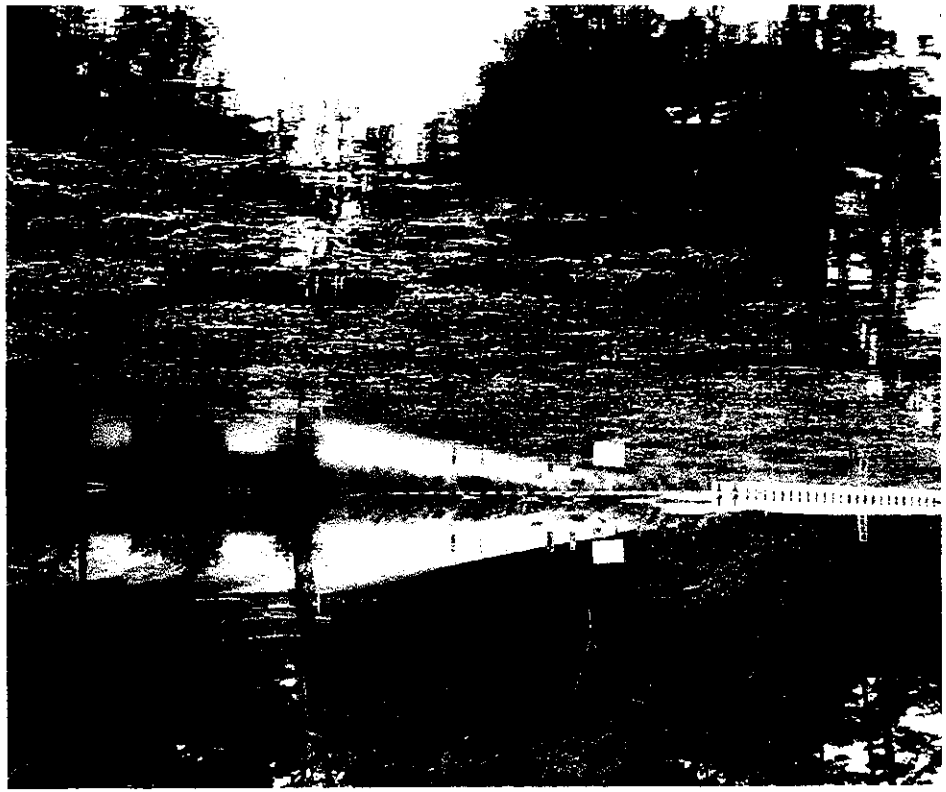
Lake lowering and the proper use of a harvester in conjunction with other treatments dictated by the further results of the scientific study will form an effective lake management plan.

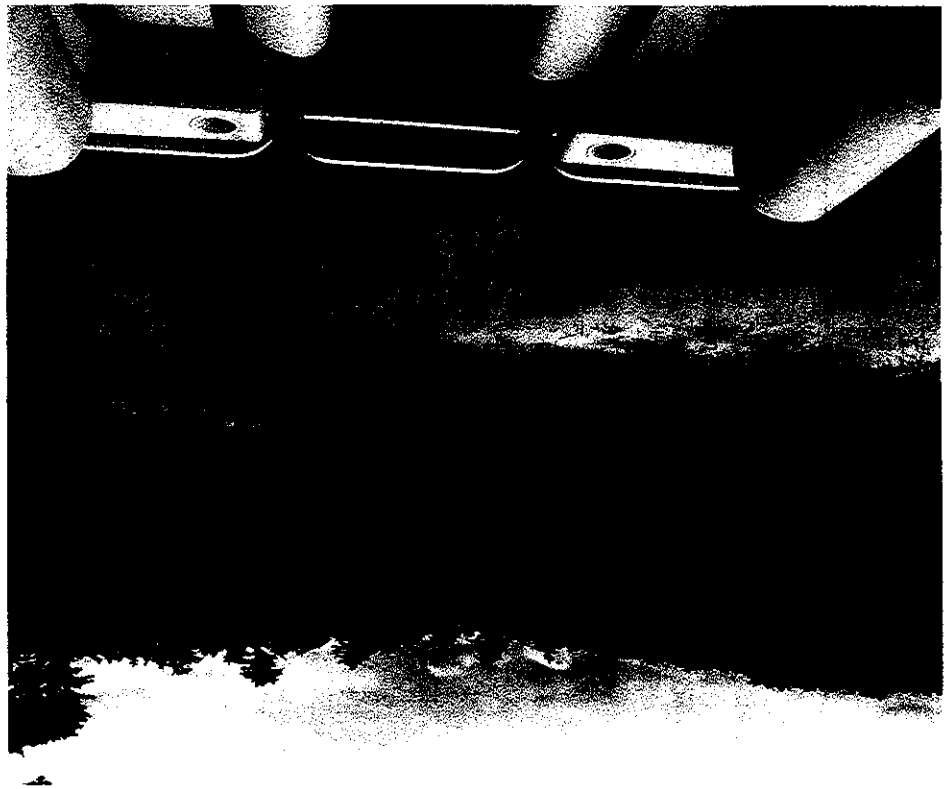
To this end the following are highly recommending:

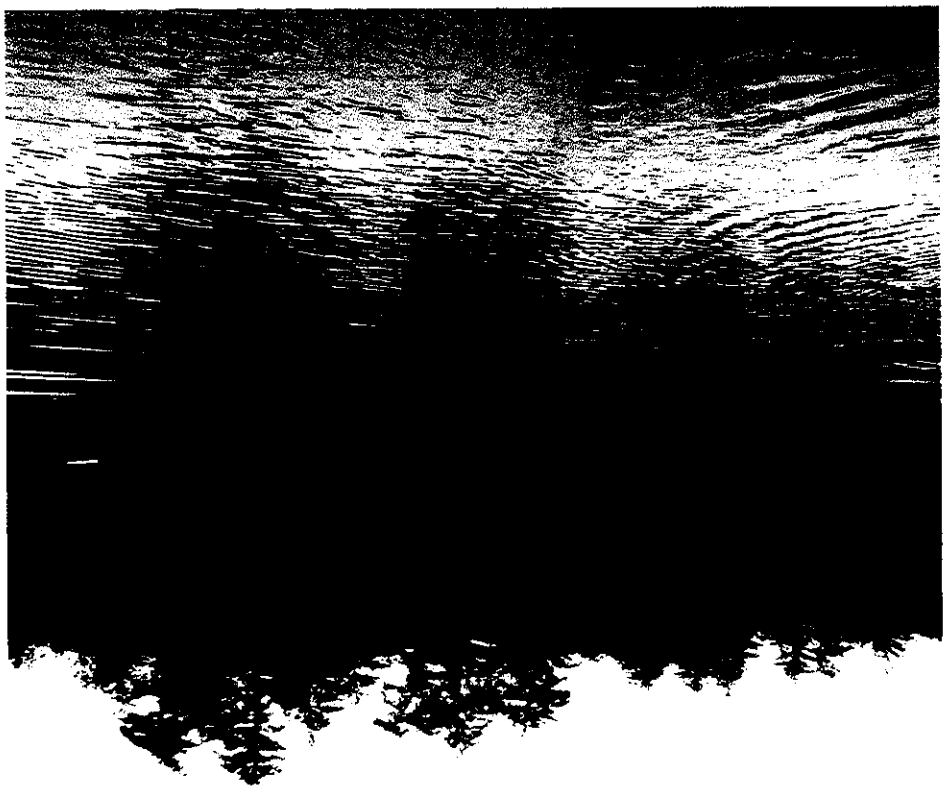
1) **Lowering the lake by mid October and raising it again immediately after the ice has frozen solid.**
2) **Purchasing a used harvester for less than $20k and operating it in accordance with the lake management plan as outlined.**
3) **Continue and complete the scientific study and develop the remaining elements of the comprehensive lake management plan based on the results of the study. The cost of measurement equipment and analysis is estimated at less than $5k.**

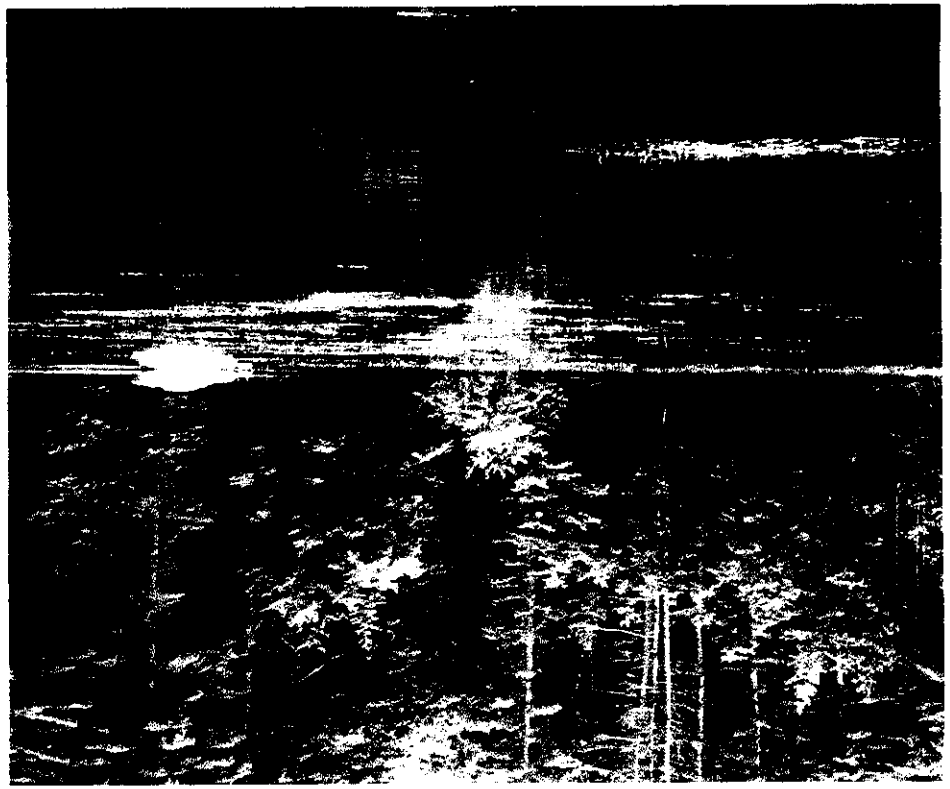












Lake Massapoag Weed Harvesting

7/28/09

LMRGC Board of Directors

Presented by

R. Jon Wheeler

LMRGC Problem

- Invasive and nuisance weeds are densely infesting more than 80% of the potential growth areas on Lake Massapoag.
- Weed infestation adversely effects the aquatic environment, decreases water quality, decreases usability and has many negative impacts indirect to the lake (ex. increased mosquitoes, etc.)

LMRGC Plan

- Use weed harvesting as first step in mitigation and control of invasive and nuisance weeds on Lake Massapoag.

LMRGC Applicable History

- 5/08-present
  - Ongoing scientific study including weed sampling with data for 15 years, research and comparison of methods and success. Continuing efforts (see excerpt of newsletter). Results confirm **weed harvesting** and annual drawdowns as primary tools.
- 6/09
  - Published plans, results and intentions in newsletter. BOD made serious effort to obtain consensus from all lake residents including polling members and non-members. Results of poll: of 34 responses received (out of 90 potential with the attendance at the annual meeting averaging less than 25), 1 undecided, 5 against and 29 for (>80%).
  - Inquired about general feasibility through informal preliminary discussion with Groton, Dunstable and Tyngsboro CONSOM. Received positive initial results.
  - LMRGC BOD unanimously votes to buy harvester and pursue harvesting as part of overall lake management plan.
- 7/09
  - Purchase used weed harvester.
  - Received permission and order of conditions to begin harvesting in Dunstable.
  - Began harvesting in Dunstable. Immediate dramatic positive results.
  - **Tyngsboro CONSCOM.**
  - Groton CONSCOM.

LMRGC Weed Harvesting and Applicability to Lake Massapoag

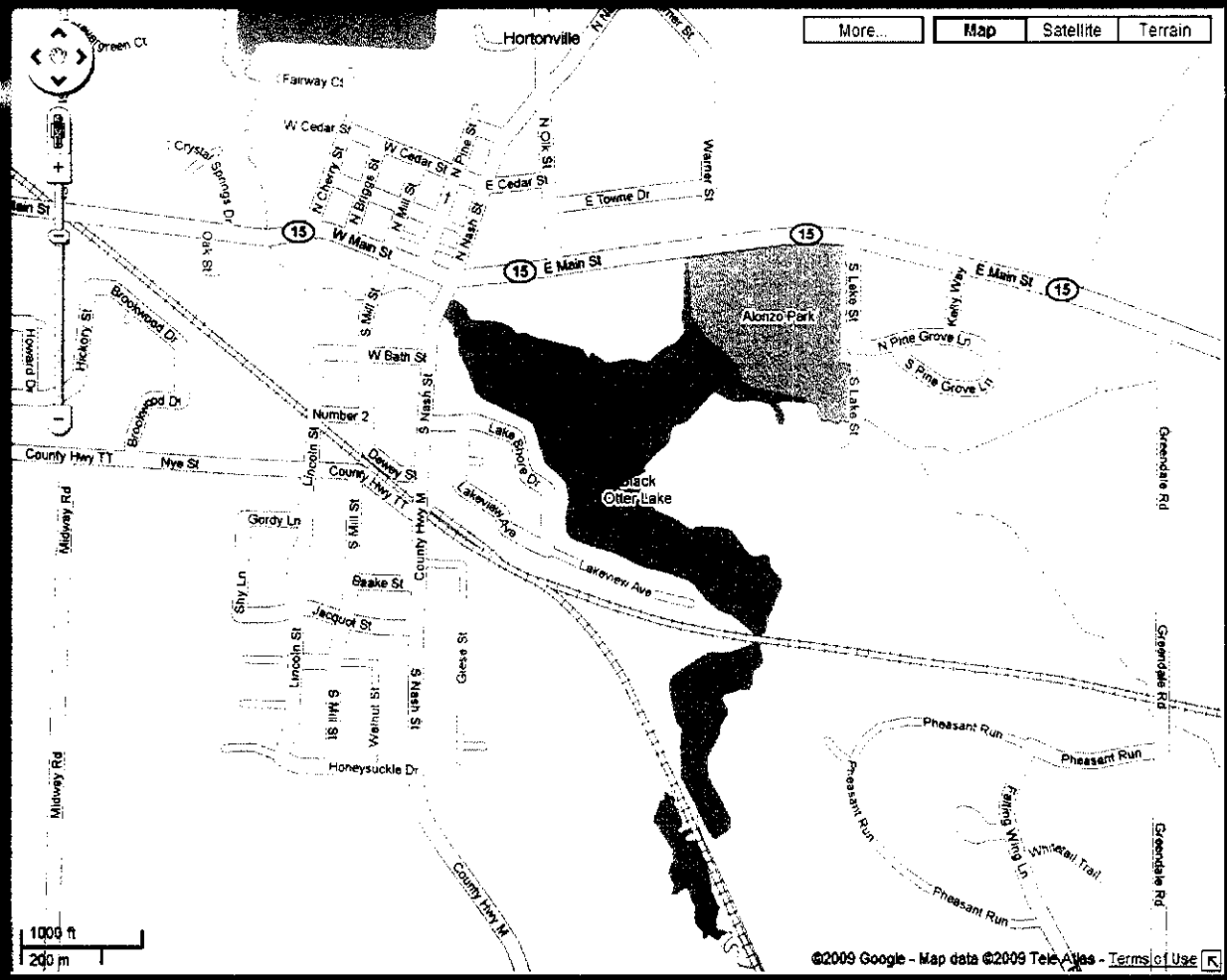
- Pros
  - Immediate control. Provides immediate relief for infested areas.
  - Valid; well researched, well used, well accepted tool in weed management (see many references). Used successfully on many local lakes.
  - Will prevent fragmentation spreading of weeds caused by boat use.
  - Will remove harmful biomass from lake. Has been shown to effectively mitigate high nitrate and phosphate levels as well as help increase dissolved oxygen (see studies). This mitigates several root causes of weed infestation.
  - **Feasible!!** Affordable and implementable.
- Cons
  - Work intensive. Normally harvesting is one of the more expensive options. Affordable option with a used harvester and extensive volunteer efforts.
  - Potential to spread weeds through fragmentation. Only an issue if large percentages of lake remain free of weeds. Not the case on Massapoag; over 80% of potential growth areas of lake are already densely infested. Current boat use already chops weeds within 2ft of surface. Fragmentation caused by harvesting can be largely mitigated by harvesting technique (long cuts following contours as opposed to in and out perpendicular to shoreline).
  - Not the single long term solution. Harvesting is only one aspect of a larger lake management plan (see excerpt from newsletter)
  - Non-scientific, anecdotal, or non-relevant evidence presented and used during the decision process regarding the use of lake weed harvesting. "My buddy on another lake told me harvesting was a disaster…" Replace "harvesting" with any aspect of lake management plan (drawdowns, chemicals, aeration, benthic barriers, etc.).

LMRGC Example Comparison Between Similar Lakes

- Black Otter Lake vs. Massapoag Lake
  - Similar weeds: Milfoil and Curly-leaf.
  - Similar latitude, size, flow, depth, use, population, etc.
  - Has tried different treatments.
  - **Has recent detailed lake management plan with comprehensive study including scientific results and costs (see Adaptive Lake Management Plan Black Otter Lake, 06/2008).**

- Summary
  - Successfully uses harvesting as part of a comprehensive adaptive lake management plan (great example).

LMRGC Black Otter Lake (same scale)



LMRGC Massapoag Lake (same scale)